

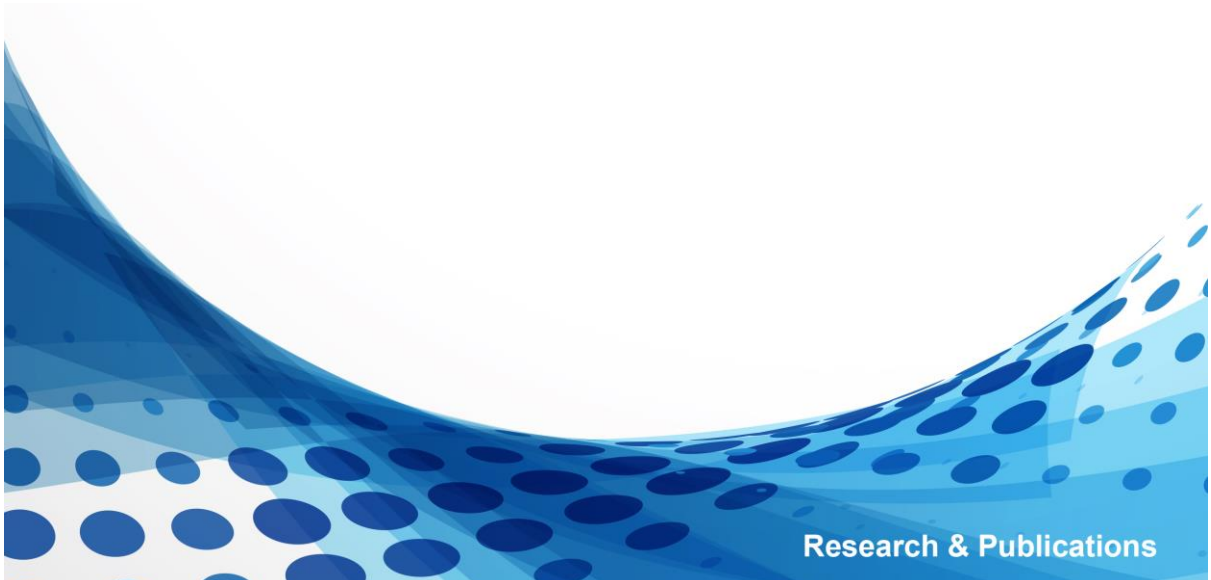


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Unlocking the Power of Accelerators: The Crucial Role of Institutions in Boosting New Venture Performance

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**Unlocking the Power of Accelerators: The Crucial Role of Institutions in
Boosting New Venture Performance ***

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Unlocking the Power of Accelerators: The Crucial Role of Institutions in Boosting New Venture Performance

ABSTRACT

Accelerators are gaining popularity in the entrepreneurship ecosystem for accelerating new ventures by providing benefits such as sorting, signaling, and learning. However, existing empirical evidence on the impact of accelerators on new venture performance does not take into account the role of the institutional environment. In this paper, I argue and test for the importance of institutions and empirically examine the impact of accelerators on new venture performance using a generalized difference-in-differences technique on a worldwide accelerator database. At the baseline, the findings are consistent with previous literature, which shows a positive impact of accelerators on the revenues and equity funding of new ventures. However, I find that the positive impact is higher in countries with strong institutions. This paper demonstrates that institutions are a crucial boundary condition for assessing the impact of accelerators on new ventures. These findings contribute to nascent empirical research that assesses the impact of business accelerators on new venture performance.

Keywords: accelerators, new ventures, institutions, entrepreneurship, venture performance

Unlocking the Power of Accelerators: The Crucial Role of Institutions in Boosting New Venture Performance

Accelerators are “learning-oriented, fixed-length programs that provide cohorts of ventures with mentoring and education” (Hallen et al., 2020: p.380). With the success of the Y-combinator (started in 2005), accelerators are increasingly becoming popular in the entrepreneurial ecosystem (Carayannis and Von Zedtwitz, 2005; Kim and Wagman, 2014). Accelerators enable new ventures by removing uncertainty (Goswami et al., 2018), providing entrepreneurship capital (Gonzalez-Uribe and Leatherbee, 2018), education and mentoring (Pauwels et al., 2016), validation and clarity (Goswami et al., 2018), networking opportunities (Cohen and Hochberg, 2014), and accountability (Gonzalez-Uribe and Leatherbee, 2018). Given the benefits, extant empirical research examines the impact of accelerators on various metrics of venture performance, such as firm survival (Del Sarto et al., 2020; Yu, 2020), external equity (Lall et al., 2020; Neville and Lucey, 2022), emergence (Kher et al., 2022), and profitability (Neville and Lucey, 2022).

However, the role of institutions in the impact of accelerators on new venture performance is under-researched with conflicting results. First, past empirical research neglects the institutional context by testing the hypothesized relationship in only single countries (Gonzalez-Uribe and Leatherbee, 2018; Hallen et al., 2020; Yu, 2020). For example, Gonzalez-Uribe and Leatherbee (2018) examine only Chilean business accelerators’ impact on new venture performance. Similarly, Hallen et al. (2020) and Yu (2020) base their study exclusively on the US context. Second, multi-country empirical research, accounting for institutions, uses a questionable and uni-dimensional proxy for institutional quality (Assenova, 2021; Kher et al., 2022). For example, Assenova (2021) uses the discontinued Ease of Doing Business (EDB) ratings, whereas Kher et al. (2022) uses a simplistic OECD and non-OECD classification to differentiate institutions. Third, the result from multi-country empirical research assessing the role of institutions in the impact of accelerators on new venture performance is conflicting and creates a tension in the literature (Kher et al., 2022; Lall et al., 2020). While, in line with the Institutional support view (Henrekson and Johansson, 1999; Ahsan et al., 2021), Lall et al. (2020) find that institutions help equity investment in high-income

countries or countries with developed institutions. In contrast, similar to the Institutional void view (Khanna and Palepu, 2010; Palepu and Khanna, 1998), Kher et al. (2022) finds that the impact of accelerators on new venture performance is relatively higher in non-OECD countries.

Related literature indicates that institutional context adds an important boundary condition to assess the impact of accelerators on new venture performance. First, Van de Ven (1993) argues that the institutional environment facilitates and constrains the growth and development of entrepreneurship in a country. Second, Peng et al. (2009) highlights the difference between institutions in emerging and developed economies to criticize strategy research that assumes away institutions in the background. Subsequently, Peng et al. (2009) argues that including institutions will enable strategy scholars to contribute to public policy issues. Third, the addition of institutional context informs policy decisions related to the role of public policy in promoting entrepreneurship (Acs et al., 2016) ¹. In this paper, I contribute to the question of how the institutional environment moderates the impact of accelerators on new venture performance.

For my analysis, I use the data from the Entrepreneurship Database Program at Emory University, supported by the Global Accelerator Learning Initiative (GALI) ². GALI provides comprehensive data on accelerator performance with information on variables such as program duration, accelerator program location, sector of focus, stages of focus, and funding type ³. I combine GALI data with institutional indicators by the Index of Economic Freedom from Heritage Foundation and Wallstreet Journal ⁴. Since the shortage of cash is the top-most reason for new venture failure (Insights, 2022), I use sources of cash, i.e., revenues and external equity to assess the performance of the new venture. Using generalized difference-in-differences analysis on a matched sample (using Coarsened Exact Matching (CEM)) of for-profit new ventures, I find that accelerated firms outperform non-accelerated firms on revenues and external equity. However, the impact of accelerators depends on the institutional context. Particularly, the impact of accelerators on external equity funding is higher in countries with strong institutions. Moreover, I observe

¹For debate on the role of public policy in promoting entrepreneurship: <https://vimeo.com/143745467>

²<https://www.galidata.org/about/>

³For detailed information, one can refer - <https://www.galidata.org/accelerators/>

⁴<https://www.heritage.org/index/download>

performance heterogeneity based on the choice of institutional indicators.

This study makes three important contributions. First, it contributes to a relatively young field of empirical research assessing the impact of accelerators on new venture performance. It empirically shows that accelerated firms outperform non-accelerated firms in terms of revenues and external equity funding. Second, it adds a much-needed institutional context to the literature on accelerators. It indicates that the positive benefits of accelerators in terms of external equity funding and revenues are higher in countries with strong institutions. Third, it informs public policy by emphasizing that accelerator benefits depend on the dynamic interplay between macro and micro institutions. Only micro-institutions such as accelerators may not be able to compensate for weak macro institutions.

I organize the rest of the paper as follows. First, I conduct a brief literature review of empirical studies related to the impact of accelerators on new venture performance. After a literature review, I argue for the importance of the inclusion of institutional quality in assessing the benefits of accelerators and subsequently frame hypotheses predicting the impact of business accelerators. Then, I explain the data and methodology to test the hypotheses. The section contains details about the GALI database and empirical specifications for generalized difference-in-differences methodology. Thereafter, I show the results and end the paper with a discussion and conclusion section.

LITERATURE REVIEW

Empirical research on accelerators explores outcomes at three different stages. The first set of studies focuses on the selection of new ventures for accelerator programs (Assenova, 2021; Yang et al., 2020). The second set of studies primarily explores accelerator heterogeneity (Chan et al., 2020; Kwapisz, 2022). The third set of studies examines the impact of accelerators on new venture performance (Gonzalez-Uribe and Leatherbee, 2018; Hallen et al., 2020; Yu, 2020). Since my paper focuses on assessing the impact of accelerator participation on new venture performance, I discuss the third set of studies in detail.

Gonzalez-Uribe and Leatherbee (2018) examine Chilean business accelerators' impact on new venture performance. Using a sample of 3258 new ventures between 2011 and 2012, they find that acceleration (participating in accelerator programs) increases the probability of securing additional financing, the amount of capital raised, and the number of employees. Similarly, Hallen et al. (2020) base their study in the US context and find that accelerated firms have higher funding, more traffic, and a higher number of employees than non-accelerated firms. In the same context, Yu (2020) finds that accelerators resolve uncertainty, leading accelerated firms to speedy exit and higher funding efficiencies.

Lall et al. (2020) expand the scope of accelerator-related studies by examining the impact of 77 impact-oriented accelerators (worldwide) on new venture performance and find that accelerated firms have a higher equity investment in the follow-up year than non-accelerated firms. Likewise, Venâncio and Jorge (2022) find a positive impact of accelerators on the external equity-to-capital ratio. Kher et al. (2022) study the social impact accelerators (SIA) and find that accelerator help new social ventures in becoming viable business models. They find that accelerated social firms have higher financing, revenues, and employment.

Conversely, related literature also finds insignificant and negative impacts of accelerators on new venture performance. Neville and Lucey (2022) find that accelerated Irish SMEs have negative profitability. Moreover, Venâncio and Jorge (2022) find no significant impact of accelerators on debt and philanthropic investments. Additionally, Del Sarto et al. (2020) find that accelerators have no significant impact on the survival of Italian start-ups. Similarly, Gonzalez-Uribe and Leatherbee (2018) find an insignificant impact of accelerators on the survival of Chilean start-ups.

Literature also attempts to understand “why” accelerators impact new venture performance (Hallen et al., 2020; Venâncio and Jorge, 2022; Yu, 2020). Extant literature finds three possible mechanisms underlying the accelerator effect (Hallen et al., 2020; Yu, 2020). These mechanisms are Sorting (Hallen et al., 2020), Signaling (Yu, 2020), and Learning (Hallen et al., 2020). First, sorting is a two-sided phenomenon that arises from matching between accelerators and new ventures. New ventures have the propensity to select the highest quality accelerators. Similarly, accelerators also

select high-performing new ventures for acceleration. Consequently, Kim and Wagman (2014) argues that investors are interested in accelerated companies because accelerators screen good companies. Second, signaling benefits refer to the reputational benefits to accelerated firms because of association with a reputed third party, i.e., business accelerators (Kher et al., 2022). Finally, learning benefits refer to the benefits of schooling by business accelerators (Cohen and Hochberg, 2014). Even though the structure of schooling differs for accelerators, almost all the accelerators provide instructions (formal or informal) in the form of workshops or seminars, which increases entrepreneurship know-how (Cohen and Hochberg, 2014; Gonzalez-Uribe and Leatherbee, 2018).

Role of Institutions in Accelerator Impact on New Venture Performance

Although empirical research examines the impact of business accelerators on new venture performance, the role of institutions as a boundary condition is relatively under-explored. For instance, the majority of studies on accelerators are single-country studies (Del Sarto et al., 2020; Gonzalez-Uribe and Leatherbee, 2018; Hallen et al., 2020; Neville and Lucey, 2022; Yu, 2020). Moreover, the majority of the multi-country studies ignore the institutional context Venâncio and Jorge (2022). This paper is most closely related to multi-country studies that include the institutional context (Assenova, 2021; Kher et al., 2022; Lall et al., 2020). However, there are three key problems with past research conversations examining the role of institutions in the impact of business accelerators on new venture performance.

First, past research uses unidimensional and questionable measures of institutions. For example, Assenova (2021) uses the World Bank's ease of doing business (EDB) rating to examine institutional change and argues that institutional reforms lower barriers to entrepreneurship. But the ease of doing business rating focuses only on one dimension of institutions, i.e., Business freedom, and ignores other equally important dimensions of institutions such as property rights, financial freedom, monetary freedom, trade freedom, labor freedom, and investment freedom. Moreover, the World Bank EDB report has data irregularities, leading to the World bank discontinuing the report⁵. Similarly, Kher et al. (2022) use OECD and non-OECD classification to argue that accelerator

⁵<https://www.worldbank.org/en/news/statement/2021/09/16/world-bank-group-to-discontinue-doing-business->

benefits are higher in non-OECD countries vis-à-vis OECD countries. I argue that OECD and non-OECD classification does not capture the wide implications and understanding of institutions as it assumes group-level homogeneity of institutional variables in the two groups. I find the support of this argument in past research that examines and finds institutional heterogeneity within OECD countries (Freeman, 2002). Likewise, Lall et al. (2020) use the income of the countries to identify emerging markets. However, extant research finds institutional heterogeneity within lower-income, upper-middle-income, and high-income countries (Lee and Kim, 2009).

Second, extant research finds conflicting results in the assessment of the role of institutions in the impact of accelerators on new venture performance. While, in line with the Institutional-support view (Rajan and Zingales, 1998; Ahsan et al., 2021; Henrekson and Johansson, 1999), Lall et al. (2020) use the income of countries to comment on institutions and find that institutions help equity investment in high-income countries (proxy for developed institutions). Conversely, based on the Institutional void view (Khanna and Palepu, 2010; Palepu and Khanna, 1998), Kher et al. (2022) use OECD and non-OECD classification to comment on institutions and find that the impact of accelerators on for-profit social venture (FPSV) performance is relatively higher in non-OECD countries.

Third, previous research on the impact of accelerators uses propensity score matching (PSM) to match accelerated and non-accelerated firms to account for sorting or selection bias (Kher et al., 2022). However, recent econometrics research recommends using coarsened exact matching (CEM) over PSM matching King and Nielsen (2019); Blackwell et al. (2009). Moreover, previous studies match binary variables such as whether a start-up has revenue above a certain amount (Yes/No) and whether a start-up has full-time employees above a certain number (Yes/No). Reducing continuous variables such as revenue and employees to binary variables and subsequent matching on these binary variables seems problematic because it fails to take into account the variation in revenues and equity that could provide a more robust matching.

Insert Table 1 about here

In this paper, I resolve these problems in two ways. First, I take a multi-dimensional measure of institutions. I use data from the Index of Economic Freedom (IEF), which provides data on multiple dimensions of institutional quality ⁶. The IEF is published by the Heritage Foundation and Wallstreet Journal. It focuses on four government-controlled aspects of economic and entrepreneurial environment, i.e., the rule of law, government size, regulatory efficiency, and market openness ⁷. I use the aspects relevant for entrepreneurship, i.e., the rule of law (property rights), regulatory efficiency (business freedom and labor freedom), and market openness (financial freedom) for the analysis. Property rights indicate the protection of property rights by countries' legal frameworks. Business freedom measures the efficiency of business operations. Labor freedom measures the quality of countries labor market. Finally, financial freedom is an indicator of banking efficiency. I also use the overall rank of the country in the index of economic freedom as a holistic indicator for institutional quality. Due to its richness and multi-dimensional nature, literature in entrepreneurship extensively uses IEF to measure the quality of institutions (Dau and Cuervo-Cazurra, 2014; Tarakci et al., 2018; Boudreaux et al., 2019). Moreover, I create two alternate hypotheses to test how institutions moderate the accelerator-performance relationship, i.e., the Institutional-support vs Institutional-void view.

Second, I go beyond the binary variables and match new ventures on exact values of variables including revenues, full-time employees, and equity since founded using a much more robust matching technique, i.e., Coarsened Exact Matching (CEM). Thus, using a multi-dimensional measure of institutional quality and a comparatively superior matching technique on the exact value of key variables, I attempt to answer the following research questions:

1. What is the impact of accelerators on new venture performance?
2. How does the institutional environment moderate the impact of accelerators on new venture performance?

⁶<https://www.heritage.org/index/>

⁷https://www.heritage.org/index/pdf/2023/book/02_2023_IndexOfEconomicFreedom_METHODODOLOGY.pdf

Table 1 provides a summary of the literature review and shows how this study contributes to the research conversation.

HYPOTHESES DEVELOPMENT

Impact of Accelerators on New Venture Performance

A firm needs resources to survive and thrive in a competitive environment; consequentially, resources are the source of sustained competitive advantage (Barney, 1991). Thus, the capability to acquire resources is critical for firms to survive and thrive. However, acquiring resources is challenging for new ventures (Gompers and Lerner, 2001). Evidently, running out of resources is a prominent reason for new venture failure (Insights, 2022). Previous research attributes the failure to acquire resources for new ventures to various factors, including a lack of historical firm performance, limited tangible assets, uncertain cash flow resulting in unreliable valuations, and a rapidly changing business environment (Gompers and Lerner, 2001). Because of the lack of historical firm performance, there are no objective criteria to evaluate the managerial and entrepreneurial capabilities of the new venture. The phenomenon is analogous to the lemons argument advanced by Akerlof (1970), where the market is unable to properly estimate the value of the start-up (Audretsch et al., 2011). In absence of such objective criteria, the market either increases the cost of resources or withholds transactions with these new ventures. For instance, financial institutions would be reluctant to finance these new ventures without collateral. Similarly, customers would be reluctant to engage in long-term contracts.

An accelerator helps new ventures to overcome resource acquisition problems by providing two interlinked but differentiated benefits, i.e., learning (Cohen and Hochberg, 2014; Gonzalez-Uribe and Leatherbee, 2018) and certification (Gonzalez-Uribe and Leatherbee, 2018; Spence, 1976). The accelerator's learning benefits refer to acquiring knowledge and capability because of scheduled programs, mentorship, workshops, and networking within an accelerator program. Learning or schooling benefits can be both formal and informal. The formal schooling includes expert mentorship on product development, market fit, marketing, technology, unit economics,

business development, customer discovery, and go-to-market strategy (Saba, 2020). The formal session resolves business strategy, business model, and product-market fit uncertainties (Yu, 2020). Additionally, mentorship with experienced entrepreneurs also helps build managerial and entrepreneurial capabilities (Goswami et al., 2018). Most of the business accelerators also organize founder stories sessions by serial entrepreneurs which motivates budding entrepreneurs and builds resilience (Bullough and Renko, 2013). Informally, learning also occurs by interacting with the peer group, providing networking opportunities, and building social capital (Audretsch et al., 2011). Past research proposes that accelerators use their connection expertise to connect entrepreneurs with entrepreneurial ecosystems (Goswami et al., 2018). I argue that this connection with the entrepreneurial ecosystem helps new ventures find customers, suppliers, employees, and co-founders. The quotes by two alumni (also in Figure 1) of leading accelerators sum up the benefits of accelerator learning.

"YC motivated PlanGrid to focus on the single thing that mattered - building something people love and **finding product market fit**. Their advice helped us **get over early roadblocks** and PlanGrid would not exist today without YC's love, support, and continued guidance."

(Tracy Young, Founder, PlanGrid⁸)

"At critical moments throughout our history, somehow someone in the Techstars network **pointed us in a direction that that led us to where we are today.**"

(Adam Wilson, Founder, Sphero⁹)

Insert Figure 1 about here

I argue that these learning benefits, both, formal and informal, helps new venture acquire knowledge-related resources such as the right business model, product-market fit, and customer

⁸[ycombinator.com/quotes](https://www.ycombinator.com/quotes)

⁹[techstars.com/startups](https://www.techstars.com/startups)

segments. Application of these knowledge resources manifests in the form of higher firm revenues for accelerated ventures. Thus, I hypothesize a positive impact of the accelerator on new venture revenues.

Hypothesis 1. Accelerated new ventures have higher revenues in comparison to non-accelerated new ventures.

Accelerator also helps new ventures by providing certification of quality. One of the crucial challenges new venture face in resource acquisition is the lack of legitimacy associated with insufficient performance history. The projected cashflows and subsequent valuation of the firms are unreliable. Lack of performance history exacerbates the unreliability of projected financial performance. Association with reputed 3rd parties, such as business accelerators, brings certification benefits to firms and gives legitimacy to the performance estimates. This is similar to the arguments by Spence (1978), who argue that workers can signal their creativity using education levels in a job market where employee productivity is unobservable. Similarly, certification by accelerators signals entrepreneurial efficiency, correct product-market fit, and, thus, reliable estimates of firm performance. The quotes below (also Figure 1) by an accelerator participant and an investor provide evidence supporting this argument.

“Having the **Techstars badge creates a lot of confidence** in the market that you’re a real company, a real entrepreneur.”

(Jilliene Helman, Founder, Realty Mogul¹⁰)

"Y Combinator is the best startup accelerator in the world, and we pay close attention to their companies—**many of our best investments have come through YC**. YC helps their companies a LOT, and the YC community is a huge asset for the companies that go through the program."

(Ron Conway, Founder, SV Angel¹¹)

¹⁰techstars.com/startups

¹¹ycombinator.com/quotes

Additionally, since potential investors such as Venture Capitalists and Angel investors are part of the accelerator program, they are more likely to invest in accelerated new ventures because of informational advantages. Moreover, acceleration creates a network of alumni which includes suppliers, customers, investors, and founders. External investors connected to this alumnus of the network can trigger their relational contacts to retrieve more information about accelerated ventures in comparison to non-accelerated ventures. These informational advantages facilitate more funding for accelerated ventures. Finally, the success of accelerators is tied to the success of new ventures. Thus, accelerators tend to market accelerated ventures to potential investors (refer to Figure 2 for such examples). Thus, I argue that the certification benefits help new ventures signal managerial capability and potential for success. These benefits manifest in the form of higher resource acquisition capability in the form of external funding. Thus, I hypothesize a positive impact of the accelerator on external equity raised by the new venture.

Insert Figure 2 about here

Hypothesis 2. Accelerated new ventures have higher external equity in comparison to non-accelerated new ventures.

Moderating Role of Institutional Quality

According to North (1991: 97), "Institutions are humanly devised constraints that structure political, economic, and social interaction." Since institutions create and enforce the rule of the game (North, 1991), which include business transactions, extant research examines institutional antecedents of entrepreneurship activities such as venture creation, innovation, funding, etc. (refer Urbano et al. (2019) for literature review). Similarly, institutional quality potentially acts as an important boundary condition in assessing the impact of business accelerators on new venture performance. Evidently, past research provides two alternate and opposite ways an institution can moderate the business accelerator-venture performance relationship, i.e., the Institutional-void view and the Institutional-support view.

Khanna and Palepu (2010) coins term 'Institutional void' referring to the missing product, labor, and capital market in emerging economies. According to Palepu and Khanna (1998), the missing institutions increase transaction cost and results in inefficiencies in the long term. Further, Palepu and Khanna (1998) creates a framework for government policy and recommends the importance of intermediation, such as financial services and management development. In line with the recommendations, governments in emerging markets use intermediaries such as business incubators and accelerators to address institutional failure (Dutt et al., 2016). Consequently, Armanios et al. (2017) finds that entrepreneurs in emerging economies use these institutional intermediaries to acquire public resources. Past research in emerging economies finds that business accelerators fill the institutional voids by providing connection, development, coordination, and selection expertise (Goswami et al., 2018). This expertise provisioning helps business accelerators to play a crucial role in developing the entrepreneurial ecosystem. Moreover, the certification benefits of accelerators are higher in developing economies because of the asymmetric information and structural weakness of government (Auriol and Schilizzi, 2015). However, in developed markets, with an efficient product, labor, and capital market, the advantages of a business accelerator as an intermediary are limited. Moreover, entrepreneurial capabilities, managerial skills, and education information are readily available in developed economies because of excellent recordkeeping and digitization. Thus, according to this view (labeled here as the Institutional-void view), the benefits of business accelerators are higher in countries with weak institutions vis-a-vis countries with strong institutions. Kher et al. (2022) find support for this view by showing that accelerated firms in non-OECD countries have higher revenue, employees, and equity. However, for OECD countries, accelerated firms only have higher revenues and equity (not employees).

In contrast to the 'Institutional-void view,' Institutional-support view argues in favor of the importance of macro-institutions for venture performance (Ahsan et al., 2021; Henrekson and Johansson, 1999). Institutional quality refers to the strength and effectiveness of a country's political, legal, and economic institutions, including factors such as the rule of law, property rights protection, and government stability. Using the Institutions-support view, I argue that strong

institutions facilitate funding availability, create a conducive business environment, and ensure the availability of high-quality mentorship and support. First, institutional quality moderates the impact of business accelerators on new venture performance through its impact on the availability of funding. Rajan and Zingales (1998) finds that financial institutions are important for the equity market and critical antecedents to economic growth. Thus, in countries with poor institutional quality, funding may be scarce, and startups may have a harder time accessing capital, even with the support of an accelerator. This could limit the impact of accelerators on new venture performance. Second, institutional quality can affect the overall business environment, including the ease of doing business, the availability of resources, and the level of competition. In countries with strong institutional quality, startups may have an easier time navigating regulations and accessing resources, which could amplify the impact of business accelerators on new venture performance. Accordingly, Assenova (2021) finds that an increase in institutional quality improves new venture development. Finally, institutional quality could also affect the quality of mentorship and support provided by accelerators. In countries with poor institutional quality, there may be a lack of experienced mentors and advisors, limiting the value that accelerators can provide to new ventures. In summary, according to the institutional support view, institutional quality can moderate the impact of business accelerators on new venture revenues by affecting the availability of funding, the overall business environment, and the quality of mentorship and support provided by accelerators. In line with these arguments Lall et al. (2020), finds that the benefits of accelerators are limited to developed economies and do not reach emerging markets.

Thus, the institutional-void and institutional-support view predicts a contrasting moderation of institutional quality in the accelerator-performance relationship. Thus, I test these contrasting predictions in alternate hypotheses 3 and 4.

Hypothesis 3. Institutional quality negatively moderates the impact of the business accelerators on new venture performance (both equity and revenue), such that new venture performance is higher when institutions are weak.

Hypothesis 4. Institutional quality positively moderates the impact of the business accelerators on new venture performance (both equity and revenue), such that new

venture performance is higher when institutions are strong.

DATA AND METHODS

I use data from Global Accelerator Learning Initiative (GALI). GALI is a collaboration of Emory University and Aspen Network development entrepreneurs (ANDE) with the public and private funders' consortium ¹². GALI works with accelerators and collects data on new ventures during the application process. These accelerators operate in various geographical regions, sectors, and impact areas. They also collect follow-up data from both accelerated and non-accelerated firms. The database contains information on more than 23,000 new ventures that applied to accelerators between 2013 to 2019. Due to its richness, past studies on accelerators and new ventures extensively use the GALI dataset (Assenova, 2021; Kher et al., 2022; Lall et al., 2020). Since this study focuses on for-profit new ventures, I filter out new ventures with legal status as nonprofit, other, and undecided. Further, I remove those new ventures for which the one-year follow-up data is not available. Accordingly, I perform subsequent analysis on the remaining 7405 new ventures. Table 2 presents the variables and the measurement of variables used in further analysis. To take care of the skewness in the key performance measures such as revenue, employees, and equity, I log-transform these variables.

Insert Table 2 about here

Research Design

As described earlier, one of the potential benefits of accelerators is sorting, i.e., accelerators may select ventures with the most potential to be successful. If this is true, sorting potentially explains post-acceleration benefits on external equity funding and revenues. In other words, ventures may be able to raise external equity because they were better ventures, to begin with. Since participation in an accelerator program may not be random because of the influence of pre-treatment variables (Blackwell et al., 2009) such as revenues, full-time employees, sector, year of

¹²<https://www.galidata.org/about/>

application, and equity, I must control for these differences. Thus, I match accelerated and non-accelerated firms on the year of application, revenues, full-time employees, equity since founded, and sector using Coarsened Exact Matching (CEM).

Table 3 reveals important differences between the accelerated and non-accelerated firms before applying for acceleration. Specifically, it shows that accelerated firms have higher revenues, more full-time employees, more equity (cumulative), higher experience (age), higher debt, and higher wage bill compared to non-accelerated firms during application. These differences underline the importance of using robust matching techniques such as CEM for the analysis. By using CEM matching, the purpose is to rule out any sorting benefits of accelerators, i.e., there should be no pre-acceleration differences between the accelerated and non-accelerated new ventures. Table 4 shows the difference between key variables for the matched sample. After matching, there are no significant differences between accelerated and non-accelerated firms. Accordingly, I conduct the subsequent analysis on these CEM-matched 1706 new ventures (877 accelerated and 829 non-accelerated).

The resulting matched sample of 1706 new ventures consists of new ventures from different sectors and geographies. Table 5 and Figure 3 show the sector and the geography information for the new ventures in the sample, respectively. Table 5 shows that the sample represents new ventures from diverse sectors, including agriculture, education, health, information and communication technology, and others. Figure 1 shows that the study has representation from different continents. The highest observations are from the United States, followed by Mexico and Kenya.

Insert Table 3 about here

Insert Table 4 about here

Insert Table 5 about here

Insert Figure 3 about here

Empirical Strategy

In this section, I explain the empirical strategy for the analysis of my research questions. In a standard difference-in-differences methodology, the key coefficient of interest is the interaction of $Treat \times Post$. In this paper, the time of treatment (i.e., participation in an accelerator program) varies across observations. So, I cannot use a standard difference-in-differences methodology. To overcome the varying time of treatment, I use a generalized difference-in-differences framework (as done by Angrist and Pischke (2014) to study legal mandates on minimum drinking age across US states). Essentially, I create a new dummy variable (i.e., *Participated*) to indicate the interaction term between $Treat \times Post$. Therefore, *Participated* is my key explanatory variable. In addition to the matching of ventures based on their key characteristics, I also control for sectors throughout my analysis using sector-fixed effects. Finally, I use the interaction of accelerator-fixed effects, country-fixed effects, and year-fixed effects to control for accelerator-invariant, country-invariant, and time-invariant heterogeneity. The interactions also capture the time-variant heterogeneity associated with accelerators and countries. The coefficient of *Participated* indicates the difference in the outcome variable for accelerated and non-accelerated new ventures. In line with prior research, I use revenues and external equity funding as the outcome variables to measure the performance of new ventures (Kher et al., 2022; Venâncio and Jorge, 2022; Lall et al., 2020).

To examine the moderating role of institutions in the assessment of the impact of accelerators on new venture performance, I interact the *Participated* variable with various measures of *Institutions*. The coefficients of these interaction terms provide information on the moderation effect of each institutional dimension.

RESULTS

Table 6 shows the correlation and descriptive statistics of the matched sample. As the performance measures, i.e., revenue and equity funding, are log-transformed, one may not be able

to draw interpretations about them from this table. The correlation table shows that there is a high correlation between different measures of institutional quality. To account for high correlation, I separately include each institutional quality measure for the regression analysis.

Insert Table 6 about here

Table 7 presents the main results. Models (1) and (2) show the baseline impact of accelerators on new venture performance in terms of revenue and equity funding. Hypotheses 1 and 2 suggest that accelerated new ventures have higher revenues and external equity in comparison to non-accelerated new ventures. I find that after controlling for sector fixed effects, accelerator fixed effects, country fixed effects, year fixed effects, and their interactions, revenue and equity funding increase post-acceleration. In particular, the revenues of a venture one year post acceleration increase by approximately 75 percent due to acceleration. Similarly, external equity funding increases by around 64.5 percent. Both these effects are statistically significant at the 1 percent level. Thus hypotheses 1 and 2 are supported.

The alternate hypotheses 3 and 4 suggest an opposite moderating role of institutions in the impact of business accelerators on new venture performance. From Table 7, Model (3) to (12), I show the moderating effect of various institutional dimensions on the impact of accelerators. Taken together, I find that the positive impact of accelerators on equity funding is higher when the institutional environment of the home country is strong. This can be seen from the statistically significant coefficients of the interaction terms when the dependent variable is equity funding. However, after controlling for the moderating effect of institutions (that are themselves insignificant in the case of revenues), accelerators' positive impact on the revenues of ventures is attenuated. This is evident from the insignificant coefficients of the *Participated* variable and the interaction terms. This result underlines the importance of considering the role of institutions while assessing the impact of accelerators. Based on the moderation results, I reject Hypothesis 3 and provide partial support in favor of Hypothesis 4. Thus I find support for the Institutional support view and reject the Institutional void view.

For ease of interpretation of moderators, I also perform a robustness test with dummy variables to indicate institutional quality. Table 8 presents the results of the robustness tests. The direction and significance of the moderators mostly remain the same. Thus, robustness results also partially support the institutional-support view.

Furthermore, I perform a robustness test with sub-samples to elucidate further the differential impact of institutions in assessing accelerators' impact on new venture performance. I use the World Rank of economic freedom released by the Heritage Foundation to create subsamples of countries with high and low economic freedom. Table 9 shows the result of this analysis. The results are consistent with Hypothesis 4, i.e., the impact of the business accelerator is higher in countries with strong institutions. The coefficients of both revenues and equity are higher for countries with high economic freedom. The results clearly show that the impact of business accelerators on new venture performance is mainly driven by accelerators in countries with high-quality institutions.

Insert Table 7 about here

Insert Table 8 about here

Insert Table 9 about here

DISCUSSION AND CONCLUSION

Using data from worldwide business accelerators, I investigate the impact of business accelerators on new venture performance. After controlling for venture selection using coarsened exact matching (CEM), I find that business accelerators positively impact both the revenues and equity of new ventures. The results are consistent with the prior literature assessing the impact of business accelerators on new venture performance in multi-country context (Lall et al., 2020; Kher et al., 2022; Venâncio and Jorge, 2022). This suggests that the learning and certification benefits of business accelerators improve the performance of the new venture. I further demon-

strate the moderating role of institutional quality and find that the benefits of accelerators are higher in countries with strong institutions. In other words, compared with the non-accelerated venture, the accelerated venture has higher revenues and raises more external equity; however, this effect is higher in countries with strong institutions. By offering two alternate and contradictory theoretical accounts of institutional moderation (Institutional-void versus Institutional-support) of the accelerator-performance relationship, I highlight the importance of institutions in the early phase of an entrepreneurial venture.

The findings resolve the tension in the literature associated with the moderating role of institutions in examining the impact of business accelerators and new venture performance. The institutional void view argues in favor of the positive benefits of accelerators in countries with weak institutions (Kher et al., 2022; Khanna and Palepu, 2010; Palepu and Khanna, 1998). In contrast, the institutional-support view argues in favor of the positive benefits of accelerators in countries with strong institutions (Lall et al., 2020; Ahsan et al., 2021; Henrekson and Johansson, 1999). I resolve this tension by finding evidence in favor of the institutional support view. Since governments in emerging economies often use business accelerators and incubators to fill the entrepreneurial ecosystem lacunae (Dutt et al., 2016), the findings have important implications from a policy perspective. I find that intermediaries such as accelerators and incubators may temporarily fill for missing labor, human, and capital market; however, they cannot substitute for strong macro-institutions.

The study contributes to the conversation on institutional impact (market and state) on the entrepreneurial lifecycle (Junaid et al., 2022; Dau and Cuervo-Cazurra, 2014; Ali et al., 2020; Boudreaux et al., 2019). The findings contribute by highlighting the importance of considering the multi-dimensional measures of institutions. Additionally, it also highlights the importance of considering the non-singular measure of firm performance. Institutional indicators, i.e., property rights, business freedom, labor freedom, and financial freedom, significantly moderate external equity (Table 7). However, there is no moderating impact on revenues. Thus, there is a possibility that new ventures in countries with weak institutions find it difficult to apply the knowledge acquired

from accelerators because of weak institutions.

Methodologically, the study contributes by using coarsened exact matching (CEM) technique to control selection bias because of the sorting benefits of accelerators. Past studies use propensity score matching (PSM) to control for sorting by accelerators (Kher et al., 2022; Lall et al., 2020). However, extant econometrics research recommends not to use PSM and use CEM instead (King and Nielsen, 2019; Blackwell et al., 2009). Thus, the study methodologically contributes by making the research on accelerators more robust. Moreover, the usage of saturated models, i.e., accelerator-level, time-level, country-level, and its interaction helps control for omitted variable bias and makes the results much more robust than comparable studies (Kher et al., 2022; Lall et al., 2020).

Finally, the results are not without its limitation. First, although I control for accelerator sorting benefits by using observables, there is a possibility accelerator selects these ventures based on unobservables such as ability and founder's network. Though I control for the founder's ability by using the founder's past experience, there is a possibility of other variables that can potentially drive selection. Thus, future studies can use other causal inference approaches such as Instrumental variables to control for the unobserved variables that might impact venture selection by the accelerator. Second, I attempt to differentiate between the learning and certification benefits of accelerators, however, the two benefits are interlinked. For example, the long-term benefits of certification accrue because of the learning benefits. Future research can measure the marginal performance increase of accelerated new ventures because of certification and learning individually.

REFERENCES

- Acs, Z., Åstebro, T., Audretsch, D., and Robinson, D. T. 2016. Public policy to promote entrepreneurship: a call to arms. *Small business economics*, 47: 35–51.
- Ahsan, M., Adomako, S., and Mole, K. F. 2021. Perceived institutional support and small venture performance: The mediating role of entrepreneurial persistence. *International Small Business Journal*, 39(1): 18–39.
- Akerlof, G. A. 1970. The market for “lemons”: Quality uncertainty and the market mechanism. *The quarterly journal of economics*, 84(3): 488–500.
- Ali, A., Kelley, D. J., and Levie, J. 2020. Market-driven entrepreneurship and institutions. *Journal of Business Research*, 113: 117–128.
- Angrist, J. D. and Pischke, J.-S. 2014. *Mastering’metrics: The path from cause to effect*. Princeton university press.
- Armanios, D. E., Eesley, C. E., Li, J., and Eisenhardt, K. M. 2017. How entrepreneurs leverage institutional intermediaries in emerging economies to acquire public resources. *Strategic Management Journal*, 38(7): 1373–1390.
- Assenova, V. A. 2021. Institutional change and early-stage start-up selection: evidence from applicants to venture accelerators. *Organization Science*, 32(2): 407–432.
- Audretsch, D. B., Aldridge, T. T., and Sanders, M. 2011. Social capital building and new business formation: A case study in silicon valley. *International Small Business Journal*, 29(2): 152–169.
- Auriol, E. and Schilizzi, S. G. 2015. Quality signaling through certification in developing countries. *Journal of Development Economics*, 116: 105–121.
- Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of management*, 17(1): 99–120.
- Blackwell, M., Iacus, S., King, G., and Porro, G. 2009. cem: Coarsened exact matching in stata. *The Stata Journal*, 9(4): 524–546.
- Boudreaux, C. J., Nikolaev, B. N., and Klein, P. 2019. Socio-cognitive traits and entrepreneurship: The moderating role of economic institutions. *Journal of Business Venturing*, 34(1): 178–196.
- Bullough, A. and Renko, M. 2013. Entrepreneurial resilience during challenging times. *Business Horizons*, 56(3): 343–350.
- Carayannis, E. G. and Von Zedtwitz, M. 2005. Architecting glocal (global–local), real-virtual incubator networks (g-rvins) as catalysts and accelerators of entrepreneurship in transitioning and developing economies: lessons learned and best practices from current development and business incubation practices. *Technovation*, 25(2): 95–110.

- Chan, C. S. R., Patel, P. C., and Phan, P. H. 2020. Do differences among accelerators explain differences in the performance of member ventures? evidence from 117 accelerators in 22 countries. *Strategic Entrepreneurship Journal*, 14(2): 224–239.
- Cohen, S. and Hochberg, Y. V. 2014. Accelerating startups: The seed accelerator phenomenon.
- Dau, L. A. and Cuervo-Cazurra, A. 2014. To formalize or not to formalize: Entrepreneurship and pro-market institutions. *Journal of Business Venturing*, 29(5): 668–686.
- Del Sarto, N., Isabelle, D. A., and Di Minin, A. 2020. The role of accelerators in firm survival: An fsqca analysis of italian startups. *Technovation*, 90: 102102.
- Dutt, N., Hawn, O., Vidal, E., Chatterji, A., McGahan, A., and Mitchell, W. 2016. How open system intermediaries address institutional failures: The case of business incubators in emerging-market countries. *Academy of Management Journal*, 59(3): 818–840.
- Freeman, R. B. 2002. *Institutional differences and economic performance among OECD countries*. Centre for Economic Performance, London School of Economics and Political . . .
- Gompers, P. and Lerner, J. 2001. The venture capital revolution. *Journal of economic perspectives*, 15(2): 145–168.
- Gonzalez-Uribe, J. and Leatherbee, M. 2018. The effects of business accelerators on venture performance: Evidence from start-up chile. *The Review of Financial Studies*, 31(4): 1566–1603.
- González-Uribe, J. and Reyes, S. 2021. Identifying and boosting “gazelles”: Evidence from business accelerators. *Journal of Financial Economics*, 139(1): 260–287.
- Goswami, K., Mitchell, J. R., and Bhagavatula, S. 2018. Accelerator expertise: Understanding the intermediary role of accelerators in the development of the bangalore entrepreneurial ecosystem. *Strategic Entrepreneurship Journal*, 12(1): 117–150.
- Hallen, B. L., Cohen, S. L., and Bingham, C. B. 2020. Do accelerators work? if so, how? *Organization Science*, 31(2): 378–414.
- Henrekson, M. and Johansson, D. 1999. Institutional effects on the evolution of the size distribution of firms. *Small Business Economics*, 12: 11–23.
- Insights, C. 2022. Why startups fail: Top 12 reasons | cb insights.
- Junaid, D., He, Z., and Afzal, F. 2022. The impact of weak formal institutions on the different phases of the entrepreneurial process. *Journal of Business Research*, 144: 236–249.
- Khanna, T. and Palepu, K. G. 2010. *Winning in emerging markets: A road map for strategy and execution*. Harvard Business Press.
- Kher, R., Yang, S., and Newbert, S. L. 2022. Accelerating emergence: the causal (but contextual) effect of social impact accelerators on nascent for-profit social ventures. *Small Business Economics*, 1–25.

- Kim, J.-H. and Wagman, L. 2014. Portfolio size and information disclosure: An analysis of startup accelerators. *Journal of Corporate Finance*, 29: 520–534.
- King, G. and Nielsen, R. 2019. Why propensity scores should not be used for matching. *Political analysis*, 27(4): 435–454.
- Kwapisz, A. 2022. What do female and male entrepreneurs value in business accelerators? *Journal of Business & Industrial Marketing*, 37(6): 1208–1221.
- Lall, S. A., Chen, L.-W., and Roberts, P. W. 2020. Are we accelerating equity investment into impact-oriented ventures? *World Development*, 131: 104952.
- Lee, K. and Kim, B.-Y. 2009. Both institutions and policies matter but differently for different income groups of countries: Determinants of long-run economic growth revisited. *World Development*, 37: 533–549.
- Neville, C. and Lucey, B. M. 2022. Financing irish high-tech smes: The analysis of capital structure. *International Review of Financial Analysis*, 83: 102219.
- North, D. C. 1991. Institutions. *Journal of economic perspectives*, 5(1): 97–112.
- Palepu, K. G. and Khanna, T. 1998. Institutional voids and policy challenges in emerging markets. *Brown J. World Aff.*, 5: 71.
- Pauwels, C., Clarysse, B., Wright, M., and Van Hove, J. 2016. Understanding a new generation incubation model: The accelerator. *Technovation*, 50: 13–24.
- Peng, M. W., Sun, S. L., Pinkham, B., and Chen, H. 2009. The institution-based view as a third leg for a strategy tripod. *Academy of management perspectives*, 23(3): 63–81.
- Rajan, R. and Zingales, L. 1998. Financial development and growth. *American economic review*, 88(3): 559–586.
- Saba, K. 2020. Inside a techstars accelerator: What to expect from the three months.
- Spence, M. 1976. Informational aspects of market structure: An introduction. *The Quarterly Journal of Economics*, 591–597.
- Spence, M. 1978. Job market signaling. In *Uncertainty in economics*, 281–306. Elsevier.
- Tarakci, M., Ateş, N. Y., Floyd, S. W., Ahn, Y., and Wooldridge, B. 2018. Performance feedback and middle managers' divergent strategic behavior: The roles of social comparisons and organizational identification. *Strategic management journal*, 39(4): 1139–1162.
- Urbano, D., Aparicio, S., and Audretsch, D. 2019. Twenty-five years of research on institutions, entrepreneurship, and economic growth: what has been learned? *Small Business Economics*, 53: 21–49.
- Van de Ven, H. 1993. The development of an infrastructure for entrepreneurship. *Journal of Business venturing*, 8(3): 211–230.

- Venâncio, A. and Jorge, J. 2022. The role of accelerator programmes on the capital structure of start-ups. *Small Business Economics*, 1–25.
- Yang, S., Kher, R., and Newbert, S. L. 2020. What signals matter for social startups? it depends: The influence of gender role congruity on social impact accelerator selection decisions. *Journal of Business Venturing*, 35(2): 105932.
- Yu, S. 2020. How do accelerators impact the performance of high-technology ventures? *Management Science*, 66(2): 530–552.

FIGURE 1
Quotes by accelerator participants and Investors



"YC motivated PlanGrid to focus on the single thing that mattered - building something people love and finding product market fit. Their advice helped us get over early roadblocks and PlanGrid would not exist today without YC's love, support and continued guidance."


Tracy Young, Founder, PlanGrid (YC W12)



"Y Combinator is the best startup accelerator in the world, and we pay close attention to their companies-- many of our best investments have come through YC. YC helps their companies a LOT, and the YC community is a huge asset for the companies that go through the program."

Ron Conway, Founder, SV Angel

Raj Aggarwal **Jilliene Helman** **Adam Wilson**
Founder Founder Founder
Localytics Realty Mogul Sphero



"At critical moments throughout our history, somehow someone in the Techstars network pointed us in a direction that that led us to where we are today."

Raj Aggarwal **Jilliene Helman** **Adam Wilson**
Founder Founder Founder
Localytics Realty Mogul Sphero



"Having the Techstars badge creates a lot of confidence in the market that you're a real company, a real entrepreneur."

FIGURE 2
Accelerators marketing their portfolio companies



Why Y Combinator?

We give startups a disproportionate advantage.

4,000

funded startups

\$600B

combined valuation



Top YC companies

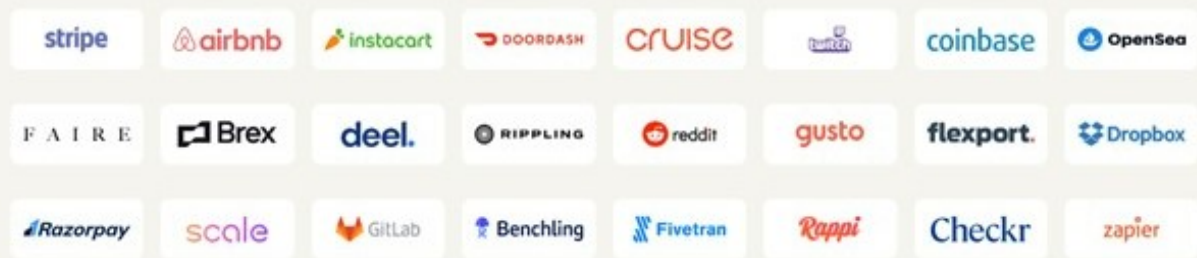


FIGURE 3
Geographical distribution of new ventures

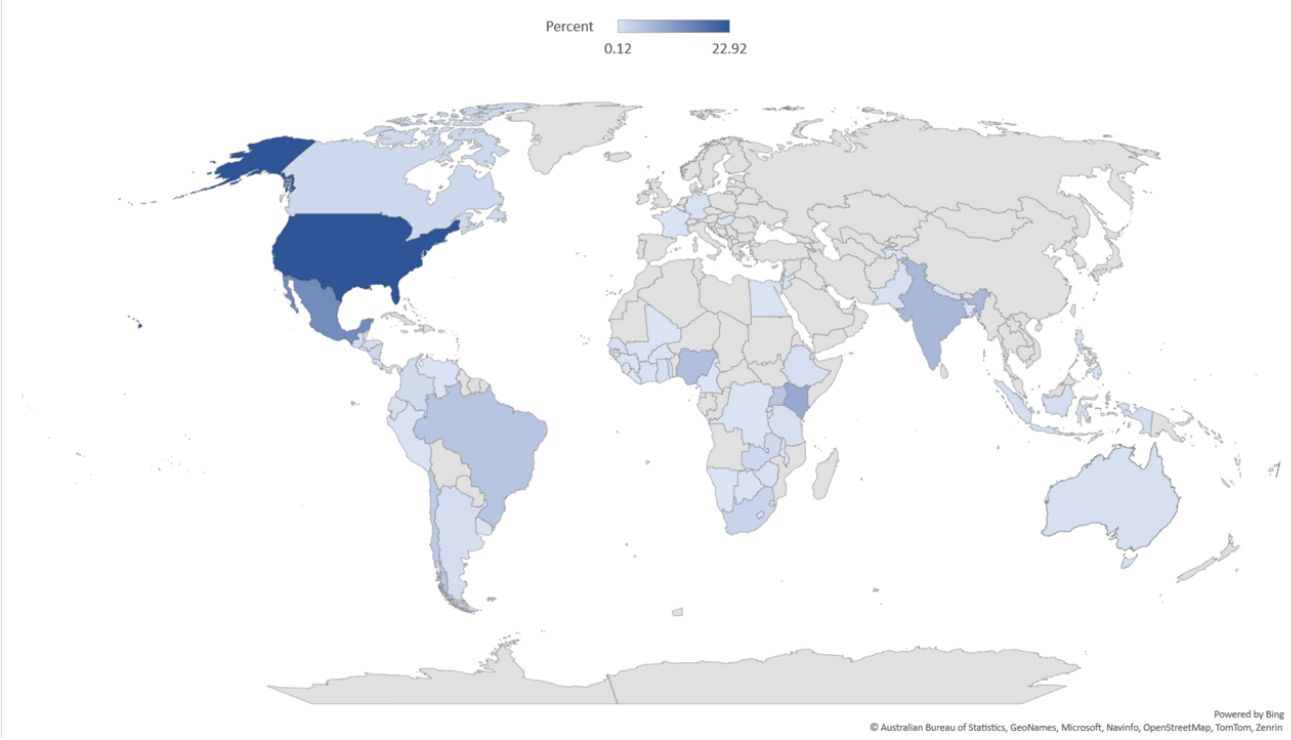


TABLE 1
Summary of literature examining the impact of Accelerators on new venture performance

SN	Author	Data	Explanatory variable	Outcome variable	Institutions
1	Gonzalez-Uribe and Leatherbee (2018)	3,258 applicants to Start-up Chile (an ecosystem accelerator) from 2011 to 2012	Participation in Business accelerators	Venture performance: Probability of securing additional financing (positive), Amount of capital raised (positive), Number of employees (positive), and Survival (insignificant)	No
2	Hallen et al. (2020)	235 ventures and top four US from 2011 to 2012	Participation in Business accelerators	Venture development: Funding (positive), Web Traffic (positive), and Employee Growth (positive)	No
3	Yu (2020)	1800 high technology new ventures, 13 accelerators located in the United States	Participation in Business accelerators	Resolves uncertainty: Exits (quicker), and Funding efficiencies (favorable)	No
4	Del Sarto et al. (2020)	76 Italian startups that applied to the accelerator program in 2013	Participation in Business accelerators	Firm survival (insignificant)	No
5	Lall et al. (2020)	1647 entrepreneurs who applied to 77 impact-oriented accelerators from 2013 to 2016 (worldwide)	Participation in Business accelerators	Equity investment in follow-up year (positive)	Yes, based on Income
6	Assenova (2021)	13,770 applicants from 170 countries applying to accelerators between 2016 and 2018	Institutional Reforms lowering the barrier to entrepreneurship	Perceived benefit of accelerator (positive), Average probability of getting selected (negative), and Quality of start-up cohorts (positive) - revenues, employees, patents, wages paid to employees, amount of planned equity raise	Yes, based on World Bank's Ease of doing business data
7	González-Uribe and Reyes (2021)	135 projects that applied to single accelerators in Colombia in March 2015	Participation in Business accelerators	Annual Revenue (positive)	No
8	Neville and Lucey (2022)	Primary data for 100 high-tech SMEs based in Ireland through the completion of a survey	Participation in Business accelerators or incubators	Profitability (negative)	No
9	Venâncio and Jorge (2022)	8399 for-profit start-ups (worldwide) that applied to accelerator programs between 2016 and 2019 (16,188 start-year observations)	Participation in Business accelerators	Capital Structure: Debt to capital (insignificant), External equity to capital (positive), and Philanthropic to capital (insignificant)	No
10	Kher et al. (2022)	7185 for-profit social ventures and 383 accelerators for the year 2013 to 2019 (worldwide)	Participation in Social Impact accelerators	Emergence: Financing (positive), Revenues (positive), and Employment (positive)	Yes, based on OECD and non-OECD countries
11	This study	2212 for-profit ventures from year 2013 to 2019 (worldwide)	Participation in Business accelerators	Equity investment in follow-up year (positive)	Yes, based on Heritage index on Economic Freedom: Property rights, Business freedom, Labor freedom, monetary freedom, Trade freedom, Investment freedom, and Financial freedom

TABLE 2
Variables and variable description

Variables	Description	Source
Participated	Dummy variable that takes value one if venture applied and participated in the accelerator program and zero otherwise	GALI
Year	Venture's year of application to the accelerator program	GALI
Revenues before	Venture's revenue before applying to the accelerator program. Since the variable is skewed, I log transform the variable (1+logx)	GALI
Employees before	Venture's number of full-time employees before applying to the accelerator program. Since variable is skewed, I log transform the variable (1 + logx)	GALI
Equity since founded before	Venture's total equity before applying to the accelerator program. Since the variable is skewed, I log transform the variable (1 + logx)	GALI
Revenues	Venture's revenue 1 year after applying to the accelerator program. Since the variable is skewed, I log transform the variable (1+logx)	GALI
Equity	Venture's total equity 1 year after applying to the accelerator program. Since the variable is skewed, I log transform the variable (1 + logx)	GALI
Venture Age	Age of the venture	GALI
Founder experience	Total number of for-profit organizations founders start before launching this venture	GALI
Total debt	Venture's total debt before applying to the accelerator program. Since the variable is skewed, I log transform the variable (1+logx)	GALI
Founders' own investment	Founders' total investment in the venture before applying to the accelerator program. Since variable is skewed, I log transform the variable (1+logx)	GALI
Wages	Total Wages paid by the venture to the employees before applying to the accelerator. Since variable is skewed, I log transform the variable (1+logx)	GALI
Number of debt sources	Total number of debt sources, such as banks, spouses, venture capital, etc.	GALI
Founding team average age	Average age of the founding team.	GALI
Multiple founder	Binary variable indicating if a venture has more than one founder.	GALI
Number of founders	Variable indicating the number of founders in the venture.	GALI
Grant dummy	Binary variable indicating if venture received a grant.	GALI
Sector	Categorical variable indicating primary sector impacted by venture activities. Examples: Agriculture, Financial Services, Energy, etc.	GALI
World Rank	A comprehensive indicator of institutional quality, ranks countries based on economic freedom. I reverse-coded the variable for ease of interpretation. Thus, the higher the rank, the better the economic freedom	Index of Economic freedom
Property Rights	A component of the Rule of law. The variable indicates the protection of property rights by countries' legal frameworks. Higher the variable, the better the property rights protection.	Index of Economic freedom
Business Freedom	A component of regulatory efficiency. The variable indicates the efficiency of business operations. Higher the variable, the better the efficiency of business operations	Index of Economic freedom
Labor Freedom	A component of regulatory efficiency. The variable indicates the quality of countries labor market. Higher the variable, the better the labor market	Index of Economic freedom
Financial Freedom	A component of Open Markets. The variable measures banking efficiency. Higher the variable, the higher the banking efficiency.	Index of Economic freedom

TABLE 3
Difference in Accelerated and Non-Accelerated new ventures before matching

VARIABLES	Accelerated (A)		Not Accelerated (NA)		Difference NA - A
	Mean	SD	Mean	SD	
Revenues before	5.984	5.221	4.891	5.016	-1.093***
Employees before	0.996	1.03	0.874	0.943	-0.122***
Equity since founded before	2.545	4.807	1.793	4.069	-0.752***
Venture Age	2.943	3.71	2.531	3.053	-0.413***
Founder's past experience	1.96	2.817	1.98	2.793	0.019
Total debt	1.469	3.664	1.063	3.096	-0.405***
Founder own investments	4.82	4.72	4.955	4.56	0.135
Wages	5.252	4.996	4.418	4.671	-0.834***
Number of debt sources	0.379	0.844	0.259	0.68	-0.119***
Founding team average age	35.8	9.011	35.415	9.046	-0.385
Multiple founder	0.82	0.384	0.812	0.391	-0.008
Number of founders	2.784	1.544	2.807	1.623	0.023
Grant dummy	0.481	0.961	0.426	0.911	-0.055*
Observations	2013		5392		7405

Notes: The difference shows that there are significant pre-treatment differences between accelerated and non-accelerated ventures before matching (*** p<0.01, ** p<0.05, * p<0.1)

TABLE 4
Difference in Accelerated and Non-Accelerated new ventures after matching

VARIABLES	Accelerated (A)		Not Accelerated (NA)		Difference NA - A
	Mean	SD	Mean	SD	
Revenues before	3.454	4.762	3.58	4.837	0.127
Employees before	0.538	0.805	0.546	0.807	0.008
Equity since founded before	0.544	2.441	0.515	2.364	-0.028
Venture Age	1.98	2.878	2.137	2.866	0.157
Founder's past experience	1.738	2.543	1.9	2.739	0.162
Total debt	0.805	2.731	0.687	2.559	-0.118
Founder own investments	3.917	4.529	4.037	4.474	0.12
Wages	3.095	4.401	3.054	4.319	-0.041
Number of debt sources	0.238	0.726	0.176	0.596	-0.062
Founding team average age	34.661	8.763	34.727	9.219	0.066
Multiple founder	0.802	0.399	0.793	0.406	-0.009
Number of founders	2.715	1.509	2.727	1.532	0.012
Grant dummy	0.423	0.925	0.378	0.845	-0.045
Observations	877		829		1706

Notes: The difference shows that there are no significant pre-treatment differences between accelerated and non-accelerated ventures after matching (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)

TABLE 5
Sector distribution of new ventures

VARIABLES	Freq.	Percent	Cum.
Agriculture	358	20.98	20.98
Artisanal	39	2.29	23.27
Culture	15	0.88	24.15
Education	187	10.96	35.11
Energy	71	4.16	39.27
Environment	75	4.4	43.67
Financial services	125	7.33	51
Health	217	12.72	63.72
Housing development	11	0.64	64.36
Information and communication technolog	153	8.97	73.33
Infrastructure/facilities development	13	0.76	74.09
Other	364	21.34	95.43
Supply chain services	26	1.52	96.95
Technical assistance services	6	0.35	97.3
Tourism	31	1.82	99.12
Water	15	0.88	100
Total	1706	100	

TABLE 6
Correlation and Descriptive Statistics of the matched sample

Variables	Participated	Revenue	Equity	World Rank	Property Rights	Business Rights	Labor Rights	Financial Rights
Participated	1							
Revenue	0.039	1						
Equity	0.035	0.070**	1					
World Rank	0.044	-0.130***	0.105***	1				
Property Rights	-0.029	-0.124***	0.136***	0.788***	1			
Business Rights	0.033	-0.155***	0.113***	0.852***	0.848***	1		
Labor Rights	-0.061*	-0.076**	0.086***	0.706***	0.536***	0.570***	1	
Financial Rights	0.029	-0.127***	0.088***	0.863***	0.796***	0.853***	0.555***	1
N	1706	1706	1706	1706	1706	1706	1706	1706
Mean	0.514	6.012	1.269	104.287	55.523	65.838	67.298	56.442
SD	0.5	4.855	3.488	50.576	19.784	14.943	18.295	14.444
Min	0	0	0	1	7.6	33.9	23.7	10
Max	1	14.324	13.305	175	90	90.5	98.5	90
Median	1	7.878	0	109	55.379	67.3	62.438	60

Notes: *** p<0.01, ** p<0.05, * p<0.1

TABLE 7
Moderating role of Institutions in the impact of the accelerator on venture performance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity
Participated	0.755*** (0.277)	0.645*** (0.207)	0.141 (0.638)	-0.452 (0.476)	-0.730 (0.837)	-1.023 (0.625)	0.329 (1.234)	-1.331 (0.921)	0.652 (1.081)	-1.955** (0.805)	-0.245 (1.150)	-1.088 (0.859)
Participated * World Rank			0.006 (0.005)	0.010** (0.004)								
Participated * Property Rights					0.026* (0.014)	0.029*** (0.010)						
Participated * Business Freedom							0.006 (0.018)	0.030** (0.014)				
Participated * Labor Freedom									0.002 (0.015)	0.038*** (0.011)		
Participated * Financial Freedom											0.018 (0.020)	0.030** (0.015)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accelerator FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accelerator * Country * Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706
Adjusted R-squared	0.179	0.111	0.179	0.114	0.179	0.115	0.179	0.113	0.179	0.117	0.179	0.113

Notes: *** p<0.01, ** p<0.05, * p<0.1

TABLE 8
Robustness Results: Moderating role of Institutions in the impact of the accelerator on venture performance

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity	Revenue	Equity
Participated	0.755*** (0.277)	0.645*** (0.207)	0.305 (0.396)	0.212 (0.296)	0.403 (0.397)	0.065 (0.296)	0.348 (0.401)	0.265 (0.300)	0.683* (0.405)	0.092 (0.302)	0.673* (0.344)	0.279 (0.257)
Participated * World Rank high			0.876 (0.551)	0.843** (0.412)								
Participated * Property Rights high					0.684 (0.551)	1.126*** (0.411)						
Participated * Business freedom high							0.771 (0.551)	0.720* (0.412)				
Participated * Labor freedom high									0.135 (0.554)	1.036** (0.413)		
Participated * Financial freedom high											0.233 (0.576)	1.036** (0.430)
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accelerator FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accelerator * Country * Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706	1,706
Adjusted R-squared	0.179	0.111	0.180	0.113	0.180	0.115	0.180	0.112	0.179	0.114	0.179	0.114

Notes: *** p<0.01, ** p<0.05, * p<0.1

TABLE 9
Robustness Test: Sub-sample analysis for countries with high and low economic freedom

VARIABLES	High Economic Freedom		Low Economic Freedom	
	Revenue	Equity	Revenue	Equity
Participated	1.265*** (0.400)	1.029*** (0.335)	0.195 (0.381)	0.226 (0.238)
Constant	4.572*** (0.265)	1.163*** (0.222)	6.675*** (0.237)	0.715*** (0.148)
Sector FE	Yes	Yes	Yes	Yes
Accelerator FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Accelerator * Country * Year FE	Yes	Yes	Yes	Yes
Observations	851	851	855	855
Adjusted R-squared	0.193	0.119	0.131	0.083

Notes: *** p<0.01, ** p<0.05, * p<0.1